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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,193	03/05/2002	Howard Hao Chen	YOR91999-0420-US2	6354

7590 06/18/2003

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EXAMINER

TRAN, TAN N

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,193

Applicant(s)

CHEN ET AL.

Examiner

TAN N TRAN

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 05/14/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12 and 14 is/are rejected.
- 7) ☒ Claim(s) 10, 11 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 14 May 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2826

DETAILED ACTION

Information Disclosure Statement

1. If applicant is aware of any relevant prior art, he/she requested to cite it on form PTO-1449 in accordance with the guidelines set forth in M.P.E.P.

609.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the at least one successive conductor level comprises a first successive level comprising at least one conductive via electrically coupled to at least one of the pair of metal lines as recited in claim 9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 05/14/2003 have been approved.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1,3,5-7,12 are rejected under 35 U.S.C. 102(a) as being anticipated by Pan (6,265,280).

With regard to claim 1, Pan discloses a substrate 12; two or more adjacent conductors (18,20), disposed in at least one dielectric layer 16 formed over the substrate 12 and electrically isolated from each other, wherein each pair of adjacent aluminum conductors (18,20) is separated by a gap, and a first high dielectric constant material 24 formed in the gap between two adjacent aluminum conductors (18,20). (Note lines 65-67, column 3, figs. 4,5,8 of Pan).

With regard to claim 3, Pan discloses the high dielectric materials having dielectric constants of 20 and made of tantalum pentoxide. (Note lines 2,3, column 4, fig. 4 of Pan).

With regard to claims 5,6,12, Pan discloses a TiN diffusion barrier formed between the high dielectric constant material 24 and the conductors 20. (Note lines 35-41, column 3, fig. 2 of Pan).

With regard to claim 7, Pan discloses at least one pair of adjacent conductors (18,20) comprises a power supply lines and a ground lines. (Note lines 64-67, column 4: lines 1-3, column 5, figs. 8,9 of Pan).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2,4,8,9,14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan (6,265,280).

With regard to claims 2,8, Pan discloses at least one successive conductor comprising at least one conductor 42 is provided over the adjacent conductors (18,20), further comprising second dielectric material 26 disposed between the adjacent conductor 20 and the at least one successive conductor level 42. (Note fig. 8 of Pan). Pan discloses all the claimed subject matter except for the second dielectric material is the second high dielectric constant material. However, it would have been obvious to one of ordinary skill in the art to form the second dielectric material is the second high dielectric constant material in order to maximize capacitance per unit area.

With regard to claim 4, Pan discloses all claimed invention as in claim 1, except the conductors are fabricated from at least one of group consisting of Au, Pt, Pd, Ir, Rh, Ru, Mo, Al, Cu, W. However, although Pan does not teach exact the material of the conductors as that claimed by Applicant, the material differences are considered obvious design choices and are not patentable unless unobvious or expected results are obtained from these changes. It appears that these changes produce no functional.

With regard to claim 9, Pan discloses the at least one successive conductor level comprises a first successive level comprising at least one conductive via 40 electrically coupled to conductor 18. (Note fig. 8 of Pan).

With regard to claim 14, Geffken et al. discloses all the claimed subject matter except for the gap is in the range 0.1 to 2.0 microns. However, although Pan does not teach exact the range of the conductors as that claimed by Applicant, the range differences are considered obvious design choices and are not patentable unless unobvious or expected results are obtained from these changes. It appears that these changes produce no functional.

Allowable Subject Matter

6. Claims 10,11,13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10,11,13 are allowable over the prior art of record, because none of these references disclose or can be combined to yield the claimed invention such as at least one successive conductor level additionally comprises a second conductor level 26 comprising additional adjacent conductors disposed above the first successive level as recited in claim 10.

Conclusion

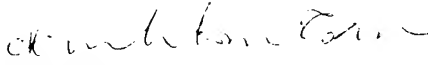
7. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tan Tran whose telephone number is (703) 305-3362. The examiner can normally be reached on M-F 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TT

May 2003


Minhloan Tran
Primary Examiner
Art Unit 2826